

## New Records of Korean Noctuidae (Lepidoptera), with Description of a New Species

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**Abstract** A new species, *Mataeomera esbiahni*, sp. nov., is described, and three species; *Koyaga virescens* (Sugi), *Spodoptera mauritia* (Boisduval), *Orthosia nigromaculata* (Höne), are reported for the first time from Korea, with illustrations of their genitalia.

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**Key words** Taxonomy, Lepidoptera, Noctuidae, new species, Korea

### INTRODUCTION

The Korean Noctuidae is enumerated with 961 species (Kononenko, Ahn, and Ronkay, 1998). In the present study, four species, *Koyaga virescens* (Sugi), *Spodoptera mauritia* (Boisduval), and *Orthosia nigromaculata* (Höne), including a new species, *Mataeomera esbiahni* sp. nov., are added to the Korean fauna. Two other species, *Calesia dasypterus* (Kollar) and *Fodina contigua* Wileman are also recognized, based on recently collected specimens, but the residence or regular appearance (migration) of these Oriental species is doubtful, although not impossible. Three genera, *Mataeomera* Butler, 1886, *Calesia* Guenée, 1852, and *Fodina* Guenée, 1852, are also first known from Korea.

Descriptions, taxonomic and biogeographical comments for each species are given, with illustrations of the genitalia.

Abbreviations for the depositories of the examined specimens: [CIS]—Center for Insect Systematics, Kangwon National University, Chuncheon; [GSU]—Department of Biology, Gyeongsang National University, Jinju; [KSS]—Personal collections of Mr. S.S. Kim; [HNHM]—Hungarian Natural History Museum, Hungary. TL—Type locality.

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## SYSTEMATIC ACCOUNTS

***Mataeomera esbiahni* Sohn and Ronkay, sp. nov.** 성복물결꼬마밤나방(新稱)

(Figs 3, 4, 10, 14)

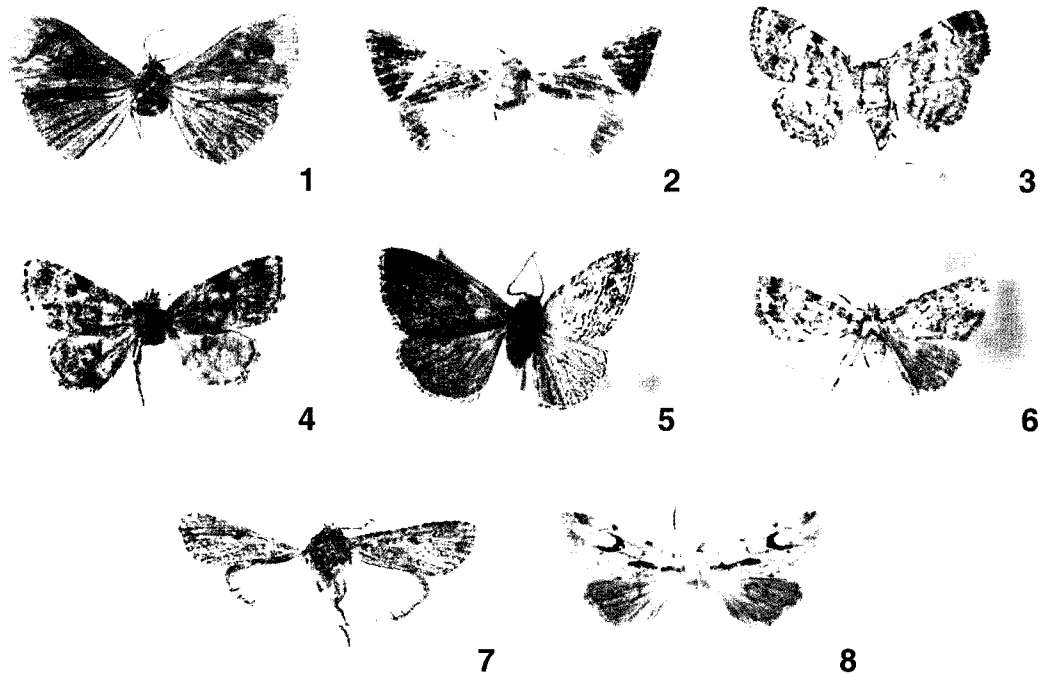
**Diagnosis.** The new species is similar externally to *Mataeomera obliquisigna* (Hampson), but differs from the latter by the forewing pattern with more deeply curved postmedian line and reduced bright grey area on termen. The genitalia of *M. esbiahni* (Figs 10, 14) are most similar to those of *M. biangulata* (Wileman) in both sexes (see Yoshimoto, 1999), but easily distinguished by the shorter ampullar process, thicker uncus, and absence of the process of the carina in the male, more widely grooved sterigma and smaller signum in the female. The male genitalia of *M. esbiahni* also can be separated from those of *M. obliquisigna* and *M. semialba* (Hampson) by the longer, more elongate, less tapering valvae distally with less convex costal margin; the larger, flattened basal plate of the harpe entirely, without long, twisted, sclerotized distal process, whereas in *M. obliquisigna*, it is prominently developed, with shorter but broader ampullar process and the thicker uncus.

**Description.** Wingspan 14–17 mm. Antennae filiform in both sexes, about half of forewing in length. Head covered with grey scales, irrorated sparsely with dark brown scales. Thorax and abdomen dark brown, speckled with longer grey hair-like scales. Forewing grey, suffused with brownish dark scales; basal, antemedian, postmedian, subterminal, and terminal lines dark brown, diffused median fascia and with a small, dark brown discal spot. Hindwing ground colour grey with darker brownish irroration; antemedian, median, postmedian and subterminal lines dark brown; discal spot rather strong, bar-like. Fringes of both wings grey with dark brown median line.

Male genitalia (Fig. 10). Uncus long, falcate, slender, somewhat dilated distally, with obtuse apex; tegumen narrow, rather long; fultura inferior narrow, quadrangular plate-like, with sclerotized lateral edges; saccus broadly V-shaped. Valva elongate, narrow, distally only slightly tapering, costa and distal third of ventral margin moderately convex; cucullus small, membranous, triangular with finely rounded apex. Sacculus long, narrow, moderately sclerotized; harpe flattened, rounded quadrangular, extending slightly over costal margin; ampullar process short, acute, wedge-shaped. Aedeagus straight, cylindrical; carina with somewhat stronger ventral and dorso-lateral plates; vesica with a fine, spine-like cornutus.

Female genitalia (Fig. 14). Ovipositor short; papillae anales quadrangular, narrow, densely setose; apophysis posterioris short; sterigma with V-shaped concave; process arisen from groove of sterigma with Y-shaped posterior end. Ostium bursae broad, with sclerotized, small, triangular lateral plates. Ductus bursae elongate-trapezoidal, moderately sclerotized. Corpus bursae elliptical-ovoid; signum represented by a triangular patch of several minute spines.

**Types.** Holotype: male, Gwangreung, Pocheon, Gyunggi Prov., Korea, 13 VII 1999 (BK Byun), genitalia preparation. no. CIS-6003. Paratypes: 1 ♀, same data as the holotype, gen. prep. no. CIS-6004; 1 ♀, same locality as the holotype, 10 VIII 1999 (JC Sohn); 2 ♀, same locality as the holotype, 30 VIII 1999 (JC Sohn); 1 ♀, Mt. Hwaya-san, Cheongpyeong, Gyunggi Prov., 2 VIII 1997 (JC Sohn), gen. prep. no. CIS-6005.; 3 ♂, 3 ♀, Bongmyeong-ri, Chuncheon, Gangwon Prov., 24–25 VII 1999 (JC



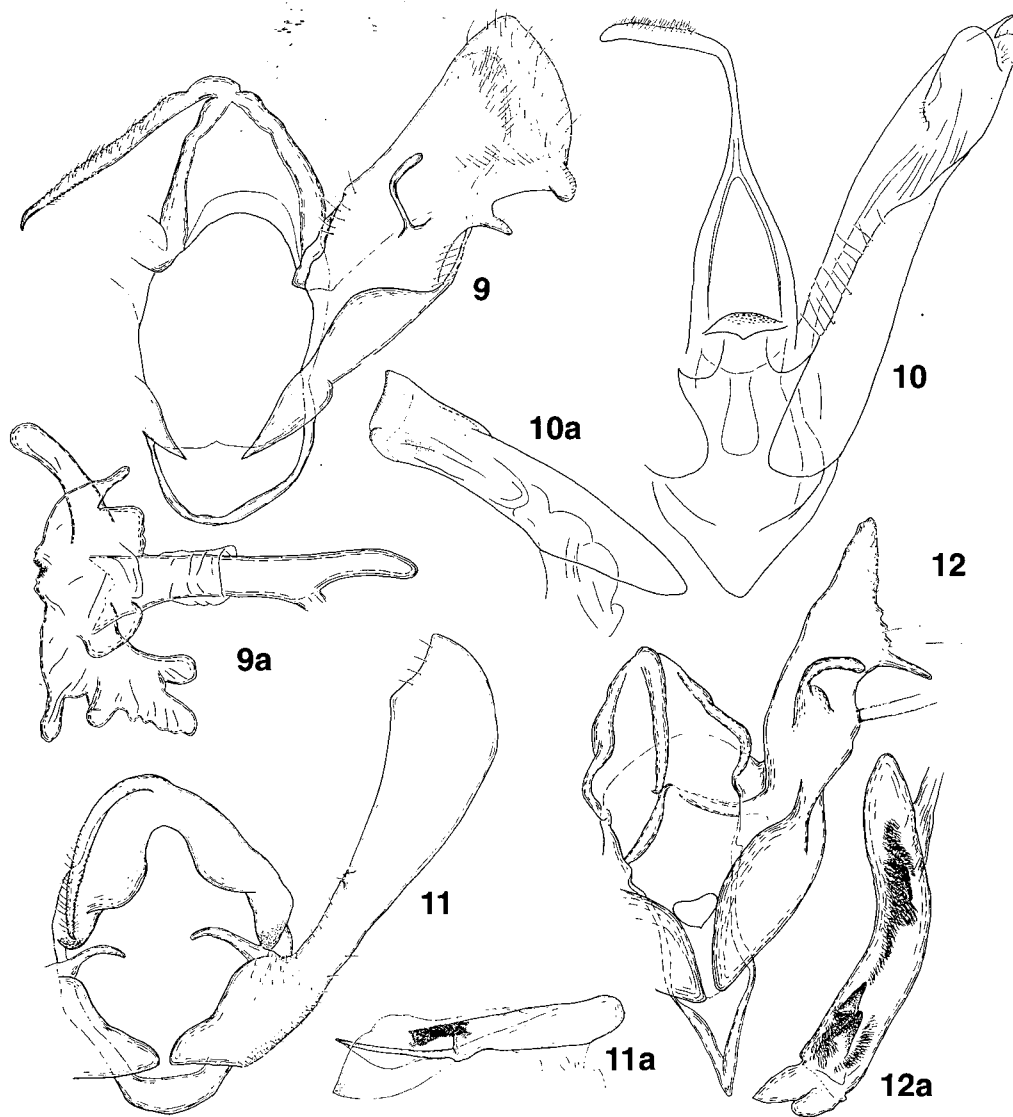
**Figs 1-8.** Adults: 1. *Calesia dasypterus* (Kollar), ♂; 2. *Fodina contigua* Wileman, ♀; 3. *Mataeomera esbiahni* n. sp., ♀ (Paratype); 4. *ditto*, ♂ (Holotype); 5. *Koyaga virescens* (Sugi), ♂; 6. *ditto*, ♀; 7. *Spodoptera mauritia* Boisduval, ♀; 8. *Orthosia nigromaculata* (Höne), ♂.

Sohn), gen. prep. no. CIS-6006 (♂). [HNHM] 1 ♂, Mt. Seolak-san, Gangwon Prov., 16 VIII 1992, No. 1609 (L Ronkay & A Vojnits), gen. prep. No. RL7270. The Holotype and nine paratypes are deposited in the Center for Insect Systematics, Kangwon Natl. Univ. Chuncheon, Korea, and a paratype in Hungarian Natural History Museum, Hungary.

*Bionomics.* Adults appear from the mid. of June to the late of August, probably univoltine.

*Distribution.* Korea.

*Remarks.* The genus *Mataeomera* Butler belonging to the subfamily Acontiinae was formerly treated as a synonym of *Autoba* Walker (Poole, 1989) or *Eublemma* Hübner, 1816 (Kononenko, Ahn, and Ronkay, 1998). Edwards (1996) synonymized *Catoblemma* with *Mataeomera* and Yoshimoto (1999) followed his opinion. The genus comprises about twenty species (17 species of the genus are listed in the catalogue of Poole (1989), modified partly by Edwards (1996), and the majority of the known taxa are distributed in the Australian and in the Asian subtropical regions. A well-defined group of species, occurring in the northern areas of the range of the genus (in the Himalayan-Pacific region); *M. obliquisigna* (Hampson, 1894), *M. biangulata* (Wileman, 1915), *M. semialba* (Hampson, 1902), *M. umbrifera* (Hampson, 1910), and *M. esbiahni* sp. nov., however, it is rather remote, in the taxonomic point of view, from the typical members of *Mataeomera* (including the type species of *Mataeomera* and *Catoblemma*) which have a generally more southern distribution extending from the Sundaland and the



**Figs 9-12.** Male genitalia (a. aedeagus): 9. *Calesia dasypterus* (Kollar); 10. *Mataeomera esbiahni* n. sp., Holotype; 11. *Koyaga virescens* (Sugi); 12. *Orthosia nigromaculata* (Höne).

Philippines to Australia. These above-mentioned Himayan-Pacific species represent possibly a distinct genus. On the other hand, the taxonomic interpretation of the more northerly distributed populations of *M. obliquisigna* is also problematic, and a revision of the entire group would be highly desirable.

Certain Australian *Mataeomera* species are known as predators of coccids (Edwards, 1996), while *M. obliquisigna* (Hampson) is reported to feed on lichens (Yamamoto, 1982). This genus is first known in Korea.

*Etymology.* The specific name is dedicated to the memory of the late Dr. S.B. Ahn, a noctuid specialist

in Korea.

***Koyaga virescens* (Sugi) 굴빛쌍무늬꼬마밤나방 (新稱)**

(Figs 5, 6, 11, 15)

*Jaspidia virescens* Sugi, 1958, Tinea 4 (1): 225, figs. 7, 11. [TL: Kumanotaira, Japan].

*Lithacodia virescens*: Sugi, 1982, In Inoue, H. *et al.*, Moths of Japan, 1: 816, 2: 383, pl. 197: 30-31.

*Koyaga virescens*: Ueda, 1987, Bull. Kitakyushu nat. Hist. Mus. 6: 38-41.

**Description.** Wingspan 15-20 mm. Head bright grey mixed with dark-brown; thorax bright grey, sparsely tinged with rufous; abdomen dark grey, with bright orange anal end. Forewing olive brown with greyish spots and lines; fringes dark olive-grey. Hindwing dark grey with obscure discal spot and bright greyish fringes. Abdomen dark grey with bright orange scales near terminal part.

Male genitalia (Fig. 11). Uncus long, slender; apex acutely hooked. Tegumen rather broad; transtilla sclerotized, keel-like. Valva elongate, basally narrower, distal third dilated, with rounded triangular subapical lobe; cucullus broad-triangular, with pointed apex and evenly arcuate outer margin. Saccus broad, short; erect part of harpe represented by a small, setose prominence. Aedeagus short, tubular; carina with a long, straight, slender dorsal bar; vesica with small, finely dentate plate.

Female genitalia (Fig. 15). Last abdominal tergite sclerotized; ovipositor short, weak; papillae anales quadrangular; both pairs of apophyses short, fine, slender. Ductus bursae as long as corpus bursae, tubular, moderately broad, most parts sclerotized. Corpus bursae membranous, simple, elongate-sacculiform, moderately long; cervix bursae small, conical, apically finely sclerotized; signum absent.

**Materials examined.** [CIS] 1 ♀, Mt. Cheonggyae-san, Seoul, 31 V 1997 (KT Park & YM Park); 1 ♀, Bongmyeong-ri, Chuncheon, Gangwon Prov., 3 VI 1999 (JC Sohn); 1 ♂, Moku-jae, Is. Jeju-do, Jeju Prov., 10 IV 1997 (YG Kim). [KSU] 2 ♀, Taehwa, Is. Ulreung-do, Gyungbuk Prov., 30-31 VII 1981 (unknown coll.); 1 ♀, Do-dong, Is. Ulreung-do, Gyungbuk Prov., 30 VII 1981 (unknown coll.); 1 ♀, Is. Ulreung-do, Gyungbuk Prov., 2 VIII 1981 (unknown coll.); 1 ♀, Mt. Palgong-san, Gunwi, Gyungbuk Prov., 20-21 VII 1998 (JS Park); 1 ♀, Mt. Bibong-san, Geumseong-myeon, Uiseong, Gyungbuk Prov., 20-21 VII 1999 (JH Sohn).

**Distribution.** Korea (new record), Japan, Taiwan.

**Remarks.** For its generic status, see Ueda (1984, 1987).

***Spodoptera mauritia* (Boisduval) 열대거세미밤나방 (新稱)**

(Figs 7, 16)

*Hadena mauritia* Boisduval, 1833, Nouv. Anns Mus. Hist. nat. Paris 2: 240; 1833, Faune ent.

Madagascar, Bourbon & Maurice (Lépid.): 92, pl. 1: 4. [TL: Mauritius, Bourbon].

*Euxoa mauritia acronyctoides* Guenée, 1852. In Boisduval & Guenée, Hist. nat. Insectes (Lépid.) 5: 154.

*Euxoa ogasawarensis* Matsumura, 1926, Insecta Matsum. 1: 6, pl. 1: 19.

*Spodoptera mauritia*: Hampson, 1909, Cat. Lep. Phal. Br. Mus. 8: 256.

**Description.** Wingspan 36-39 mm. Head bright grey; collar and thorax dark greyish brown. Abdomen

somewhat paler. Forewing elongate, more or less uniformly brownish grey, with dark brownish antemedian and postmedian lines, diffuse subterminal line, and orbicular and reniform stigmata with rather incomplete outlines, latter with dark brown spot at outer half. Hindwing shining white, somewhat transparent, veins darker brown; marginal suffusion narrow, dark brown, slightly broader at costal area.

Female genitalia (Fig. 16). Ovipositor short; papillae anales quadrangular, densely setose; apophyses posteriores three times as long as apophyses anterioris. Ostium bursae sclerotized, rather long and narrow, more or less trapezoidal. Ductus bursae long, broadly tubular; cervix bursae small, semiglobular. Corpus bursae membranous, constricted below cervix, this part finely sclerotized, longitudinally wrinkled; fundus bursae discoidal-globular, signum elliptical, covered with numerous minute spines.

*Materials examined.* [CIS] 1 ♀, Temp. Daeweon-sa, Mt. Jiri-san, Gyungnam Prov., 22 IX 1998 (GJ Weon); 1 ♀, Seonheul, Is. Jeju-do, Jeju Prov., 31 VII 1993 (KT Park).

*Distribution.* Korea (new record), Pacific eastern Asia (Japan, China, Taiwan, etc.), India, the subtropical and tropical areas of the Oriental region, Australia, Africa, Madagascar.

*Remark.* The species is known as a notorious pest of several tropical and subtropical crops. In Korea, the species is considered as an occasional migrant. The genitalic features of the Korean specimen (Fig. 16) agree well with those provided by Clarke (1971) as ssp. *acronyctoides*.

### ***Orthosia nigromaculata* (Höne) 먹무늬밤나방 (新稱)**

(Figs 8, 12, 17)

*Monima nigromaculata* Höne, 1917, Ent. Mag., Kyoto, 3: 47, t. 1, f. 2. [TL: Kobe, Japan].

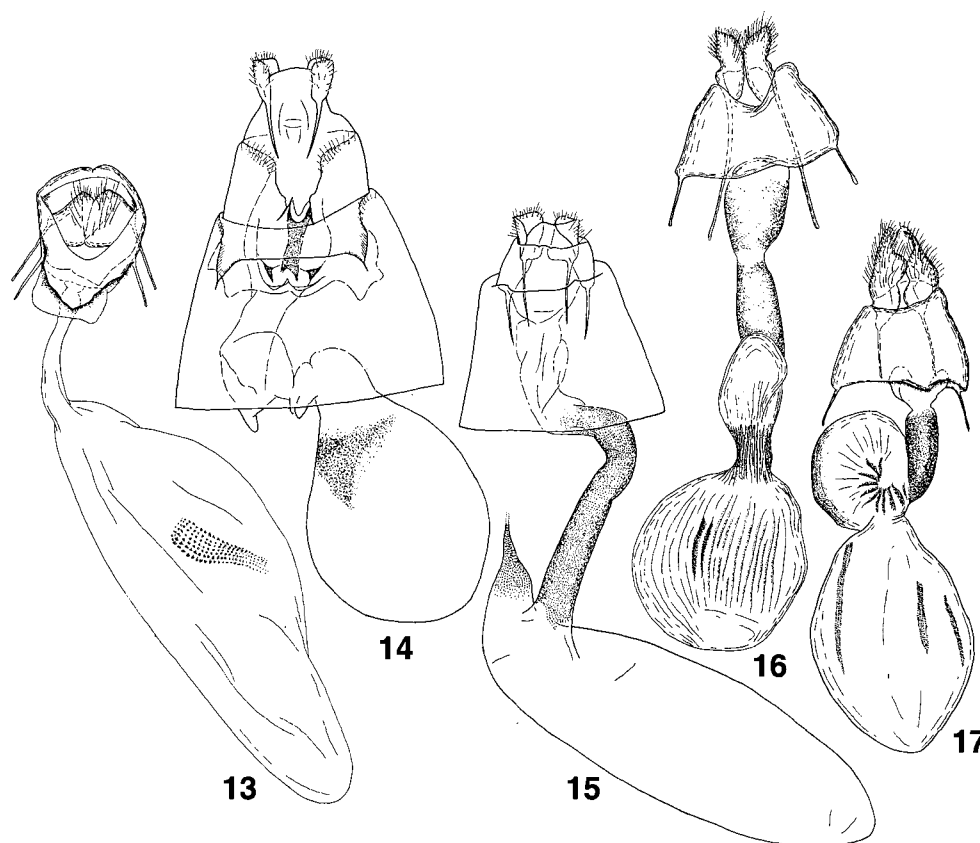
*Monima pfennigschmidtii* Püngeler, 1925, Iris, 39: 232.

*Orthosia nigromaculata*: Sugi, 1955, Tinea 2 (1/2): 92.

*Description.* Wingspan, 36–39 mm. Head and thorax ochreous grey. Forewing pale ochreous-grey or brownish grey with characteristic black pattern (see Fig. 8), consisting of straight basal streak and large, crescent reniform stigma. Hindwing suffused with dark brownish grey; discal spot and transverse line dark brown. Abdomen dark ochreous grey.

Male genitalia (Fig. 12). Uncus slender, short, finely hooked apically. Fultura inferior large, broadly shield-like, rather strongly constricted at middle; vinculum long, V-shaped. Valva elongate; distal part tapering into triangular, apically pointed cucullus; corona fully reduced; sacculus rather broad, with strong distal sclerotization; clavus reduced; harpe with long, slender basal bar and flattened, sclerotized distal plate, erect part reduced to small, setose process. Ampulla heavily sclerotized, slightly falcate, with apex pointed. Pollex strong, acute, thorn-like. Aedeagus cylindrical, finely arcuate; carina with two lateral bars. Vesica tubular, everted forward, recurved dorsally; basal part straight, ribbed, with two fine, sclerotized, dentate plates on opposite sides of basal tube; median third tubular, curved, with small, subconical diverticulum projecting forward or slightly ventrally; distal third with terminal diverticulum, armed with strong, brush-like field of spiniform cornuti.

Female genitalia (Fig. 17). Ovipositor short, conical; papillae anales quadrangular, apophyses short, fine. Ostium bursae sclerotized, lyriform-trapezoidal, connected to ductus bursae by narrow neck. Ductus bursae tubular, with gelatinous-scobinate ribs; cervix bursae relatively small, more or less globular, with



**Figs. 13-17.** Female genitalia: 13. *Fodina contigua* Wileman; 14. *Mataeomera esbiahni* n. sp., Paratype; 15. *Koyaga virescens* (Sugi); 16. *Spodoptera mauritia* Boisduval; 17. *Orthosia nigromaculata* (Höne).

rather long, sclerotized, cristate proximal plate. Corpus bursae membranous, elongate-sacculiform, with four long, weak signum-stripes.

*Material examined.* [CIS] 1 ♀, Is. Jeju-do, Jeju Prov., 10 IV 1997 (YG Kim). [KSS] 1 ♂, Is. Odong-do, Yeosu, Jeonnam Prov., 15 V 1998 (SS Kim).

*Distribution.* Korea (new record), Japan, China.

*Remark.* The genitalia of both sexes are illustrated by Ronkay & Ronkay (2000, figs 7, 8); those of the male also by Sugi (1955).

#### **Records of species with doubtful residence in Korea**

The following two species which are distributed generally in the Oriental Region were collected in Korea, but, these species are supposedly only occasional migrants in the Korean peninsula.

***Calesia dasypterus* (Kollar)**

(Figs 1, 9)

*Erebus dasypterus* Kollar, [1844], in Kollar and Redtenbacher, Kaschmir und das Reise der Siek. Viertes Band. Stuttgart. p. 476. [TL: Himalaya].

= *leucostigma* Kollar, [1844] (*Erebus*)

= *comosa* Guenée, 1852 (*Calesia*)

= *stigmoleuca* Guenée, 1852 (*Calesia*)

Male genitalia (Fig. 9). Uncus very long, slender with acute apex, densely setose. Tegumen rather narrow, weak; fultura inferior long, reversed Y-shaped. Valva large, slightly constricted medianly, distal third dilated; cucullus large, broad, rounded triangular, covered densely with long hairs; ventral extremity with triangular, pollex-like process. Sacculus elongate, narrow; harpe slender, stick-like, curved at middle; ampulla situated ventro-laterally, short, digitiform, finely setose. Aedeagus cylindrical, straight; carina with sclerotized, large, ear-shaped dorsal plate and with somewhat smaller, lateral plate. Vesica membranous, more or less cauliflower-shaped with 9–10 diverticula; proximal dorsal diverticulum finely sclerotized apically; frontal diverticula minutely dentate.

*Material examined.* [CIS] 1 ♂, Mt. Bangtae-san, Injae, Gangwon Prov., 24 VI 1996 (YM Park and HK Lee).

*Distribution.* China (South), Taiwan, Indo-china, southern Himalayas, India, Sri Lanka.

***Fodina contigua* Wileman**

(Figs 2, 13)

*Fodina contigua* Wileman, 1914, Entomologist 47: 221. [TL: Kanshirei, Taiwan].

= *stola* f. *formosensis* Strand, 1914 (*Fodina*)

= *kosemponis* Strand, 1919 (*Fodina*)

= *artemedi* Strand, 1919 (*Fodina*)

Female genitalia (Fig. 13). Ovipositor short, rather weakly sclerotized; papillae anales quadrangular; apophyses short. Ostium bursae broad, more or less trapezoidal ventrally, with strong, narrow quadrangular plate dorsally. Ductus bursae tubular, membranous. Corpus bursae long, elliptical-sacculiform, weakly membranous; signum elongate, sclerotized and wrinkled plate covered with minute spines.

*Material examined.* [CIS] 1 ♀, Gajeong-ri, Chuncheon, Gangwon Prov., 1. VIII. 1995 (HK Lee and YM Park).

*Distribution.* China (south), Taiwan, Indochina, India, Sri Lanka, Bhutan, Pacific islands.

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